

IN THE SPECIFICATION:

Please amend the specification as follows:

Please amend the subheading above paragraph [0002], as follows.

--2. DESCRIPTION OF THE RELATED ART --.

Please amend paragraph [0004], as follows.

-- [0004] For transferring a circuit pattern to the substrate 55 in the exposure apparatus, exposure light L is irradiated to the mask 51, which corresponds to a negative film in photography. The exposure light L is transmitted through a pattern (a mask pattern) formed in the mask 51 via the trapezoidal mirror 52, the convex mirror 53, and the concave mirror 54, which serve as a projection system, and then forms the image of the mask pattern. The substrate 55 is disposed at the position where the mask pattern image is formed. In this manner, the circuit pattern is formed through exposure on the substrate 55. --

Please amend paragraph [0019], as follows.

-- [0019] A projection exposure apparatus according to a third aspect of the present invention includes the aforementioned projection exposure mask and an optical system which employs the projection exposure mask to exposure a member under exposure to form a continuous pattern and a discontinuous pattern thereon. --

Please amend paragraph [0022], as follows.

-- [0022] A method of projecting exposure according to a sixth aspect of the present invention includes a first step of preparing a projection exposure mask, the projection exposure mask including a first mask pattern for exposing a member under exposure to form a continuous pattern thereon and a second mask pattern for exposing the member to form a discontinuous pattern thereon. One of the first and second mask patterns is a reflecting type mask pattern and the other mask pattern is a transmitting type mask pattern. The method further includes a second step of projection light from a projection system onto the member by using the projection exposure mask, and a third step of moving the member in a direction substantially perpendicular to a projection light axis of the projection system. The reflecting type mask pattern is irradiated with light from one side of the projection exposure mask and the transmitting type mask pattern is irradiated with light from the opposite side of the one side of the projection exposure mask at the second step. --

Please amend paragraph [0026], as follows.

-- [0026] ~~Fig. 3 is~~ Figs. 3A-3E are explanatory ~~view~~ views of steps for manufacturing the mask shown in Fig. 1; --

Please amend paragraph [0043], as follows.

-- [0043] In Figs. 1 and 2, reference numeral 1 shows the mask. In ~~Fig. 2,~~reference Fig. 2, reference numeral 2 shows a first mask pattern for exposing a substrate under exposure, not shown in Figs. 1 and 2, to form a continuous pattern thereon. In Embodiment 1, the first mask

pattern 2 is formed as a reflecting type mask pattern which reflects illumination light irradiated from the back surface side of the mask 1 at a high reflectivity. When the substrate is a substrate of a liquid crystal display panel, the continuous pattern corresponds to a gate line, a signal line, or the like. --

Please amend paragraph [0044], as follows.

-- [0044] Reference numeral 3 shows a second mask pattern for exposing the substrate to form a discontinuous cyclic pattern (consisting of isolated repetitive pattern elements) thereon. The discontinuous cyclic pattern is formed as a transmitting type mask pattern which transmits illumination light irradiated from the front surface side of the mask 1. The discontinuous cyclic pattern includes the individual pattern elements, which are separated from each other without connection and disposed at predetermined intervals. When the substrate is a substrate of a liquid crystal display panel, the discontinuous cyclic pattern corresponds to a pixel pattern, a gate electrode, or the like. --

Please amend paragraph [0049], as follows.

-- [0049] ~~Fig. 3 shows~~ Figs. 3A-3E show a procedure for manufacturing the mask 1 shown in Fig. 1 in a photolithography process.

Please amend paragraph [0050], as follows.

-- [0050] As shown in Fig. 3(a) 3A, first, a material (for example, Al, Cu, Au, Ag, or the like) with a high reflectivity for the wavelength of exposure light in the projection exposure apparatus, later described in detail, is evaporated onto a surface of a mask substrate (for example, a glass substrate) 1a, which is substantially transparent to the exposure light, thereby forming a reflecting film 5 (a first step). --

Please amend paragraph [0051], as follows.

-- [0051] Next, a surface of the reflecting film 5 is coated with a photoresist 6. Then, a first mask M for mask manufacture is used to expose the photoresist 6 to form thereon the shape (the image of a base portion serving as a base of the reflecting type first mask pattern 2 and the shape (the image) of the second mask pattern (the transmitting type second mask pattern) 3), and then development and etching are performed (a second step). This step results in base portions 5a of the first mask pattern 3 of the reflecting film 5 (the portions 5b finally become the second mask pattern 3) left on the substrate 1a, as shown in Fig. 3(b) 3B. --

Please amend paragraph [0052], as follows.

-- [0052] Next, as shown in Fig. 3(c) 3C, the remaining reflecting film 5 (5a and 5b) is again coated with a photoresist 7. A second mask for mask manufacture, not shown, is used to expose the photoresist 7 to form the shape of the first mask pattern 2 thereon before development (a third step). This step results in photoresists 7a in the shape of the first mask pattern 2 left on the base portions 5a, as shown in Fig. 3(d) 3D. --

Please amend paragraph [0055], as follows.

-- [0055] When light is irradiated from above (from the check surface side) in Fig. 3(e) ~~3E~~ to the mask 1 manufactured through the aforementioned steps, only part of the light incident on the first mask pattern 2 on which the anti-reflection film 8 is not formed (exposed) is reflected upward at a high reflectivity. In addition, when light is irradiated from below (from the front surface side) in Fig. 3(e) ~~3E~~ to the mask substrate 1a and transmitted through the mask substrate 1a, only part of the light transmitted through the portions of the anti-reflection film 8 in contact with the mask substrate 1a (the portions between the reflections films 5a and 5b) travels upward. --

Please amend paragraph [0073], as follows.

-- [0073] Before and after the reflection by the mask 1 (on a go path and a return path), each polarized light passes through the 1/4 wave plate 12a or 12b twice, so that each polarization direction is changed [[90]] ninety degrees from the direction at the time of the reflection by or the transmission through the polarized light splitting film. Thus, the polarized light transmitted through the polarized light splitting film of the polarization beam splitter 10 on the go path is reflected by the polarized light splitting film on the return path. The polarized light reflected by the polarized light splitting film on the go path is transmitted through the polarized light splitting film on the return path. --

Please amend paragraph [0084], as follows.

-- [0084] Next, at step 3, the control circuit 26 determines whether the substrate 25 reaches the projection ~~position~~(~~exposure~~ position (exposure position)) of the second mask pattern image based on the measurement results of the position measuring instrument 27. When the projection position of the second mask pattern image is reached, the control circuit 26 operates (turns on) the second illumination system 20 for illumination to irradiate the illumination light to the second mask pattern 3 at step 4. This causes exposure of the substrate 25 to form the discontinuous cyclic pattern 25b thereon. --

Please amend paragraph [0089], as follows.

-- [0089] In Embodiment 1, the mask 1 is fixedly supported at the mask set position in the projection exposure apparatus as described above and is not driven for scanning as the substrate 25. It is thus possible to reduce the length of the mask 1 in the scan driving direction of the substrate 25. Consequently, the mask 1 involves little deformation due to its own weight even when the mask 1 is supported at its peripheral areas (outside the area where the mask patterns 2 and 3 are formed). This allows the margin of the focal depth of the projection system to be provided ~~for~~ on the side of the image plane (the manufacturing margin, such as flatness, of the substrate 25) to realize the exposure of the substrate with high reliability. --

Please amend paragraph [0091], as follows.

-- [0091] This mask is provided for realizing so-called multiple exposure (see, for example, Japanese Patent application Laid-Open No. 2000-91221, which corresponds to ~~US~~ U.S.

Published Patent Application Laid-Open No. 2002-187440 ~~2002-187440~~ 2002/0187440) by the projection exposure apparatus shown in Fig. 4. --

Please amend paragraph [0093], as follows.

-- [0093] (Embodiment 2)

Fig. 7 shows the structure of a projection exposure apparatus, which is Embodiment 2 of the present invention. Embodiment 1 has been described for the case ~~where~~ in which the illumination light from the first illumination system is guided to the first mask pattern (the reflecting type mask pattern) of the mask by using part of the projection system. In Embodiment 2, however, illumination light from a first illumination system is guided to a first mask pattern of a mask from outside a projection system. --

Please amend paragraph [0095], as follows.

-- [0095] In Fig. 7, reference numeral 1" shows a mask which has a first mask pattern of a reflecting type and a second mask pattern of a transmitting type, ~~similarly~~ similar to the mask 1 described in Embodiment 1. However, the mask 1" of Embodiment 2 does not have an area where the first mask pattern extends longer than the second mask pattern as the mask 1 shown in Fig. 1, and has only a portion corresponding to the right portion of the mask 1 in Fig. 1 (the portion in which the illumination area 4 is formed). --

Please amend paragraph [0101], as follows.

-- [0101] In Embodiment 2, the control circuit 26' drives a substrate stage 28 on which the substrate 25 is mounted in a step-and-repeat manner. Each time the substrate stage 28 stops, the control circuit 26' makes the first and second illumination systems 15a and 15b irradiate illumination light to the mask 1". According to Embodiment 2, the exposure time, especially for a discontinuous cyclic pattern, can be easily ensured. In addition, in Embodiment 2, the substrate 25 can be exposed to form the continuous pattern and the discontinuous cyclic pattern thereon from separate exposure areas with a series of exposure steps (with a single process), similarly similar to Embodiment 1. --

Please amend paragraph [0103], as follows.

-- [0103] In Embodiment 3, a control circuit, not shown, drives a substrate stage 28 on which a substrate 25 under exposure is mounted in a step-and-repeat manner. Each time the substrate stage 28 stops, the control circuit (not shown in Fig. 8) ~~makes 8)~~ makes 8) makes a first illumination system 15a and a second illumination ~~systems~~ system 20 irradiate illumination light to a mask 1". --

Please amend paragraph [0106], as follows.

-- [0106] The scan type projection exposure apparatus originally has a main purpose of increasing the scan driving speed as much as possible to improve yields. However, as the scan driving speed of the substrate under exposure is increased, it becomes difficult to ensure the exposure time for the discontinuous cyclic pattern. To address this, Embodiment 4 shows the

projection exposure apparatus in which the exposure time for the discontinuous cyclic pattern can be ~~ensured~~ ensured even when the scan driving speed of the substrate under exposure is increased. --

Please amend paragraph [0107], as follows.

-- [0107] A projection system shown in Embodiment 4 is provided by adding a swingable parallel plate 32 unique to Embodiment 4 to the projection system as described in Embodiments 2 and 3. ~~Similarly~~ Similar to Embodiments 2 and 3, [[a]] first and [[a]] second illumination systems can also be provided in Embodiment 4, but they are omitted in Figs. 9 and 10. It is also possible that the parallel plate 32 is provided for the projection system described in Embodiment 1. --

Please amend paragraph [0115], as follows.

-- [0115] After the exposure start target position on the substrate 25 matches the projection ~~position~~(~~exposure position~~ exposure position) of the first mask pattern image at step (abbreviated as “S” in Fig. 11) 11, the control circuit 36 operates (turns on) the first illumination system for illumination to irradiate the illumination light to the first mask pattern at step 12. This starts exposing the substrate 25 to form the continuous pattern 25a thereon, as shown in Fig. 12. The control circuit 36 continues the driving of the substrate stage 28 for scanning at a constant speed. --

Please amend paragraph [0116], as follows.

-- [0116] Next, at step 13, the control circuit 36 determines whether the substrate 25 reaches the projection ~~position~~(~~exposure~~ position (exposure position)) of the second mask pattern image based on the measurement results of the position measuring instrument 27. When the projection position of the second mask pattern image is reached, the control circuit 36 operates (turns on) the second illumination system for illumination to irradiate the illumination light to the second mask pattern at step 14. This causes exposure of the substrate 25 to form the discontinuous cyclic pattern 25b thereon, as shown in Fig. 13. --

Please amend paragraph [0117], as follows.

-- [0117] Then, in accordance with the exposure start timing of the discontinuous cyclic pattern, the control circuit 36 causes the parallel plate 32 to start swinging in a forth (i.e., the forward) direction (in the same direction as the scan driving direction of the substrate 25) from the initial position at step 15. When the parallel plate 32 is swung in the forth direction, the image of both of the mark patterns can be moved in the forth direction of the swinging while the incident angle of the projection luminous flux on the substrate 25 is maintained by a thickness t , a refractive index n , an exposure light wavelength λ , and a change of a swinging angle θ of the parallel plate 32. The swinging speed of the parallel plate 32 in the forth direction is controlled such that the projection positions of the images of both mask patterns onto the substrate 25 are held fixedly during the scan driving, and the swinging of the parallel plate 32 in the forth direction is performed during the required exposure time for the discontinuous cyclic pattern.

Consequently, the proper exposure time for the discontinuous cyclic pattern on the substrate 25, which is being driven for scanning, is ensured. --

Please amend paragraph [0121], as follows.

-- [0121] When a pattern element of the discontinuous cyclic pattern for the next exposure remains at step 21, the flow returns to step 13 where the control circuit 36 again operates (turns on) the light source of the second illumination system for irradiation to irradiate illumination light to the second mask pattern from the time when the exposure position of the next pattern element of the discontinuous cyclic pattern on the substrate 25 reaches the projection position of the second mask pattern when the parallel plate 32 is at the initial position, and starts swinging [[of]] the parallel plate 32 in the forth direction (steps 14 and 15). This starts exposure of the substrate 25 to form the next pattern element of the discontinuous cyclic pattern and the continuous pattern thereon. In addition, when the swinging time of the parallel plate 32 in the forth direction reaches the required exposure time (step 16), the control circuit 36 turns off the light source of the second illumination system (step 17), and makes the parallel plate 32 swing in the back direction to the initial position (step 18). During this swinging, the first illumination system continues to irradiate the illumination light to the first mask pattern, that is, the exposure for the continuous pattern is continued. --

Please amend paragraph [0128], as follows.

-- [0128] The mask 101 has a first mask pattern 102 of a reflecting type formed on the back surface side for exposing a substrate under exposure to form a continuous pattern thereon and a second mask pattern 103 of a transmitting type formed on the front surface side for exposing the substrate to form a discontinuous cyclic pattern thereon, ~~similarly~~ similar to the mask 1" described in Embodiments 2 to 4. Pattern elements of the first mask pattern 102 and pattern elements of the second mask pattern 103 are formed alternately in the longitudinal direction of an irradiation area 104 of illumination light. --

Please amend paragraph [0130], as follows.

-- [0130] In Fig. 14, reference numeral 47 shows a projection lens which is advantageously telecentric on the mask side in Embodiment 5. The lens does not need to be telecentric on the side of the substrate 25'. Embodiment 5 is described for the case ~~where~~ wherein a one-side telecentric lens with a magnification of n is employed as the projection lens 47. --

Please amend paragraph [0137], as follows.

-- [0137] Thus, the condenser lens 44 provided for the first illumination system 41 has an oval shape in which two unnecessary ~~portion~~ portions are removed. The illumination light emitted from the light source 16 of the first illumination system 41 is reflected by the elliptical mirror 17 and once formed into an image to form a second light source, and then the distribution of the illumination intensity is unified by the integrator lens 43. The luminous flux is incident on

the condenser lens 44 in a linear slit-like shape, condensed thereby, and then incident on the polarization beam splitter 45. --

Please amend paragraph [0138], as follows.

-- [0138] Of the illumination luminous flux incident on the polarization beam splitter 45, a specific polarized light component (P-polarized light or S-polarized light) is reflected by a polarized light splitting film of the polarization beam splitter 45 toward the mask 101, transmitted through the 1/4 wave plate 46a, and illuminates the first mask pattern 102 on the back surface side (on the side of the projection lens 47) of the mask 101. The exposure light reflected by the first mask pattern 102 is again transmitted through the 1/4 wave plate 46a and again incident on the polarization beam splitter 45. In this manner, the exposure light (the illumination light) is transmitted through the 1/4 wave plate 46a on a go path and a return path (twice), so that the polarization direction is changed [[90]] ninety degrees from the polarization direction at the time of reflection by the polarized light splitting film. --

Please amend paragraph [0143], as follows.

-- [0143] As shown in parentheses in Fig. 14, a parallel plate 32 may be disposed swingably in the projection system closest to the image plane in Embodiment 5, ~~similarly~~ similar to Embodiment 4. --

Please amend paragraph [0146], as follows.

-- [0146] In this case, as shown in Fig. 14, the polarized light transmitted through the polarized light splitting film of the polarization beam splitter 45 is irradiated to the high-resolution reflecting type mask 48 through the 1/4 wave plate 46b. The high-resolution reflecting type mask 48 has a reflecting type mask pattern for fine pattern exposure formed thereon with the minimum pattern width smaller than the minimum pattern width of the first mask pattern 102, ~~similarly~~ similar to the third mask pattern shown by reference numeral 2a in Fig. 6. --

Please amend paragraph [0147], as follows.

-- [0147] The exposure light reflected by the high-resolution reflecting type mask 48 returns to the polarization beam splitter 45 through the 1/4 wave plate 46b. The polarization direction thereof is changed [[90]] ninety degrees from the polarization direction at the time of the transmission through the polarized light splitting film for the first time since the light is transmitted through the 1/4 wave plate 46b on a go path and a return path (twice). Thus, the exposure light from the high-resolution reflecting type mask 48 is reflected by the polarized light splitting film of the polarization beam splitter 45 and guided to the projection lens 47. --

Please amend paragraph [0150], as follows.

-- [0150] Each of Embodiments 1 to 5 has been described for the case ~~where~~ wherein the first mask pattern for providing the continuous pattern is formed as the reflecting type mask pattern and the second mask pattern for providing the discontinuous cyclic pattern is formed as the transmitting type mask pattern in the mask. However, it is possible that the first mask pattern

is formed as a transmitting type mask pattern and a second mask pattern is formed as a reflecting type mask pattern. --

Please amend paragraph [0153], as follows.

-- [0153] As described above, according to each of Embodiments 1 to 5, it is possible to complete the exposure for the continuous pattern and the exposure for the discontinuous cyclic pattern through a series of exposure ~~steps~~(a steps (a single process) without moving the mask. --

Please amend paragraph [0156], as follows.

-- [0156] While preferred embodiments have been described, it is to be understood that ~~modification~~ modifications and ~~variation~~ variations of the present invention may be made without departing from the scope of the following claims. --